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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/734,680

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Hardy Jungermann

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1186

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EXAMINER

ANTHONY, JOSEPH DAVID

ART UNIT

PAPER NUMBER

1714

MAIL DATE

DELIVERY MODE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

**Office Action Summary**

Application No.

10/734,680

Applicant(s)

JUNGERMANN ET AL.

Examiner

Joseph D. Anthony

Art Unit

1714

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 13 August 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-9 and 11-20 is/are pending in the application.
- 4a) Of the above claim(s) 9 and 16-19 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8, 11-15 and 20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                        | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date. _____ | 6) <input type="checkbox"/> Other: _____  |

Art Unit: 1714

## **FINAL REJECTION**

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art. Unit: 1714

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-8 are rejected under 35 U.S.C. 103 (a) as being obvious over Hall et al.

U.S. Patent Number 3,751,387

Hall et al teaches a composition is provided which is adapted for producing a self-supporting structure and particularly a nuclear radiation shield. The composition includes a mixture of at least two solid materials and a solvent for one or more of these materials admixed with the mixture of solid materials. The solvent employed may be water or an organic compound, or the like. The solute may be inorganic or an organic compound and preferably sucrose. *The other solid material or materials are substances that have good attenuating characteristics for nuclear radiation of various types and energy levels, particularly for neutrons and gamma (or X-ray) radiation.*

These substances contain atoms such as hydrogen, which are effective in reducing neutron energy by elastic scatter; atoms such as carbon, which are efficient in moderating higher energy neutrons to thermal neutron energy levels; atoms such as lithium, boron and gadolinium, which are good elements for the capture of thermalized neutrons; and atoms of heavy metals such as lead, tungsten and depleted uranium, which have good attenuating characteristics for gamma and X- ray radiation. There is also provided a method for forming a self supporting structure which comprises admixing sucrose or other soluble material with a second solid material, a solvent for the sucrose or its substitute being employed. The ingredients are mixed to obtain -

Art Unit: 1714

preferably a saturated solution of the solute and a product of mortar consistency. This product is shaped and cured to form a self-supporting structure.

Hall et al differs from applicant's claimed invention in that there is not a direct teaching (i.e. by way of a specific example) to a physical admixture of solid neutron sorbing substances wherein one substance is gadolinium, as an element, compound, or alloy, and the other neutron sorbing substance is one or more of those claimed by applicant in part b) of independent claim 1, such as tungsten.

It would have been obvious to one having ordinary skill in the art to use the direct disclosure of the Hall et al patent as strong motivation to make applicant's claimed composition. Applicant's attention is drawn to Hall et al's Table I wherein non-limiting neutron sorbing compositions according to Hall et al's invention are set forth. In example 8, tin powder is used at a concentration well above 10% by weight and thus read on applicant's component b). In example 9 tungsten carbide, and in (examples 10 and 22) tungsten powder are all used at a concentration well above 10% by weight and thus read on applicant's component b). In example 30, gadolinium oxide is used at a concentration well above 26% by weight and thus read on applicant's component a). In example 32, gadolinium metal powder is used at a concentration well above 26% by weight and thus read on applicant's component a). To use admixtures of different neutron sorbing materials is clearly motivated by the broad disclosure of Hall et al, such as Hall et al's abstract statement of: "*The other solid material or materials are substances that have good attenuating characteristics for nuclear radiation of various types and energy levels, particularly for neutrons and gamma (or X-ray) radiation.*". In

Art Unit: 1714

any case, to employ two or more materials in combination for the same purpose they are taught as being individually useful is not patentable outside a showing of superior and unexpected results, see *In re Kerhoven*, 205 USPQ 1069 (CCPA 1969).

4. Claims 1-8, 11-15 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lange U.S. Patent Number 6,548,570.

Lange teaches a radiation shielding material is manufactured from an elastomer that is blended with a radiation-absorbing filler material. The filler material comprises a powder of a metal with a high atomic member, or compounds thereof, such as gadolinium oxide as set forth in examples 1-4. The filler material is represented by more than 80 percent weight and has a grain size distribution in the range of 20 um to 120 um. The filler material is mixed with a loading material in powdered form. That mixture is kneaded with the elastomer within a mixer while the temperature is maintained below 180.degree. C. The kneaded mixture is cooled and then cut into strips. The strips are passed through a strainer having a mesh width of between 5 um and 1000 um. The strained strips are then formed into a foil.

Lange differs from applicant's claimed invention in that there is not a direct teaching (i.e. by way of an example) to where the gadolinium oxide is used in an amount of at least 26 wt. % as claimed by applicant. It would have been obvious to one having ordinary skill in the art to use the broad disclosure of the concentration range for the metal filler material as motivation to actually use gadolinium oxide in an amount of at least 26 wt.% by weight. In any case, it does not seem that applicant has shown any

Art Unit: 1714

superior and unobvious results that may come about when a radiation protection composition has at least 26 wt.% of gadolinium.

### ***Response to Arguments***

5. Applicant's arguments filed 8/13/07 with the amendment have been fully considered but are not persuasive to put the application in condition for allowance for the reasons set forth above. Additional examiner comments are set forth next. In light of applicant's amendment the previously made prior-art rejections of GB and Haubold et al have been dropped. Applicant's amendment has forced a changed from a 35 USC 102 type rejection to a 35 USC 103(a) type rejection over Hall et al. (see the rejection for details). Finally, it seems that applicant has misread the disclosure of the applied Lange patent. As the examiner has clearly pointed out above, Lang does indeed teach in Examples 1-4 the use of gadolinium oxide as a neutron sorbing substance which reads directly on applicant's component a). Applicant's reference to gadolinium oxi-sulfide is noted, but a proper reading of column 3, lines 15-35 only shows that gadolinium oxi-sulfide can be used, not that it is the only compound form of gadolinium taught/suggested by the patent.

### ***Conclusion***

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

Art Unit: 1714

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

***Examiner Information***

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Joseph D. Anthony whose telephone number is (571) 272-1117. If attempts to reach the examiner are unsuccessful, the examiner's supervisor, Vasu Jagannathan, can be reached on (571) 272-1119. The centralized FAX machine number is (571) 273-8300. All other papers received by FAX will be treated as Official communications and cannot be immediately handled by the Examiner.



**Joseph D. Anthony**  
**Primary Patent Examiner**  
**Art Unit 1714**

8/23/07